

4-1 Mains oxygen failure v.1

Complete failure of wall or pendant oxygen supply. Failure may be theatre-specific, zone-specific or hospital-wide.

START

- 1 Inform the theatre team of the problem, including theatre coordinator (Box A).
- 2 Call for help, but be aware failure may be widespread.
- 3 Switch to cylinder oxygen supply.
- 4 Check remaining cylinder content (Box B):
 - Ensure at least one further cylinder always available.
- 5 Prolong duration of cylinder oxygen supply:
 - Use circle system.
 - Use lowest possible fresh gas flow.
 - Use lowest possible FiO₂.
 - Check FiO₂ alarms.
- 6 Minimise auxiliary gas usage:
 - Some ventilator systems are gas-driven. If so, switching to manual ventilation will prolong oxygen cylinder supply.
- 7 Evaluate moving to nearby area if oxygen supply there preserved.
- 8 Continue to monitor and ensure adequacy of inspired oxygen and volatile agent.
- 9 Workflow:
 - Do not start any new case unless clinical priority absolutely requires it.
 - Expedite conclusion of current case if clinically appropriate.
 - Consider recovering the patient in theatre if recovery also affected (Box C).
- 10 Disconnect from failed outlets and do not re-connect until safe to do so (Box D).

Box A: ORGANISATIONAL ISSUES

Theatre coordinator or equivalent should:

- Ensure no new case is started unless clinical priority absolutely requires it.
- Ascertain the extent of the failure throughout the hospital.
- Ascertain the reserve supplies of oxygen.
- Evaluate implications for ongoing supply.
- Ensure any other relevant emergency plans are initiated.
- Coordinate delivery of further oxygen cylinders in good time.
- Ensure individual theatres are kept informed.

Box B: OXYGEN CYLINDER: REMAINING CONTENTS

% full (pressure)	CYLINDER SIZE					
	C	D	E	F	G	J
100% (137 bar)	170 L	340 L	680 L	1360 L	3400 L	6800 L
50% (69 bar)	85 L	170 L	340 L	680 L	1700L	3400 L
25% (34 bar)	43 L	85 L	170 L	340 L	850 L	1700L

Box C: RECOVERY

- Recovery area must be appropriately supplied with cylinder oxygen if also affected.
- Identify patients who do not require supplemental oxygen.

Box D: RE-ESTABLISHMENT OF SERVICES

- Disconnect equipment from failed wall/pendant outlets.
- When re-established, output may not initially be 100% oxygen.
- Do not re-use outlet until gas composition and quality satisfactorily confirmed by a competent authority.